**Report Date:** 22 Oct 2013

**Summary Report for Individual Task**
**052-204-1204**
**Tie Rope Knots and Splices**
**Status: Approved**

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DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

DESTRUCTION NOTICE: None

**Condition:** As a Power Line Distribution Specialist in a tactical or nontactical environment, you are given lengths of rope up to 1 inch in diameter, materials and tools from a typical work site. This task should not be trained in MOPP.

**Standard:** Tie knots correctly according to the type and as shown in the training information outline.

**Special Condition:** None

**Safety Level:** Low

**MOPP:** Never

**Task Statements**

**Cue:** None

## DANGER

None

## WARNING

None

## CAUTION

None

**Remarks:** All required Prime Power specific references and technical manuals will be provided by the local Prime Power Command.

**Notes:** NOTES:
1. A knot can reduce the strength of a line by as much as 50 to 60 percent if tension is applied by power equipment. All common knots, bends, and hitches can be tied in synthetic or fiber line. However, if polyethylene and polypropylene line is used, it is necessary to "double up" on the knot for it to hold. This is because of the waxy nature of the monofilament surfaces that make up the line.

2. Among line handlers, the all inclusive term knot must give way to the term's more specific meaning. In addition, divers must know which knot, bend, or hitch will best serve in a particular circumstance. In a knot, the line is usually bent to itself. A bend is used to join two lines together. A hitch differs from a knot and a bend. A hitch is generally tied to a ring around a spar or stanchion or another line, rather than merely tied back on itself to form an eye or to bend two lines together. Lashings are used to tie two parts together. The characteristic of a good knot is that it is easily tied and untied.

**Performance Steps**

1. Tie a square knot (Figure 052-204-1204-1). Use this knot to bend lines together. It is a very secure knot that will not slip.

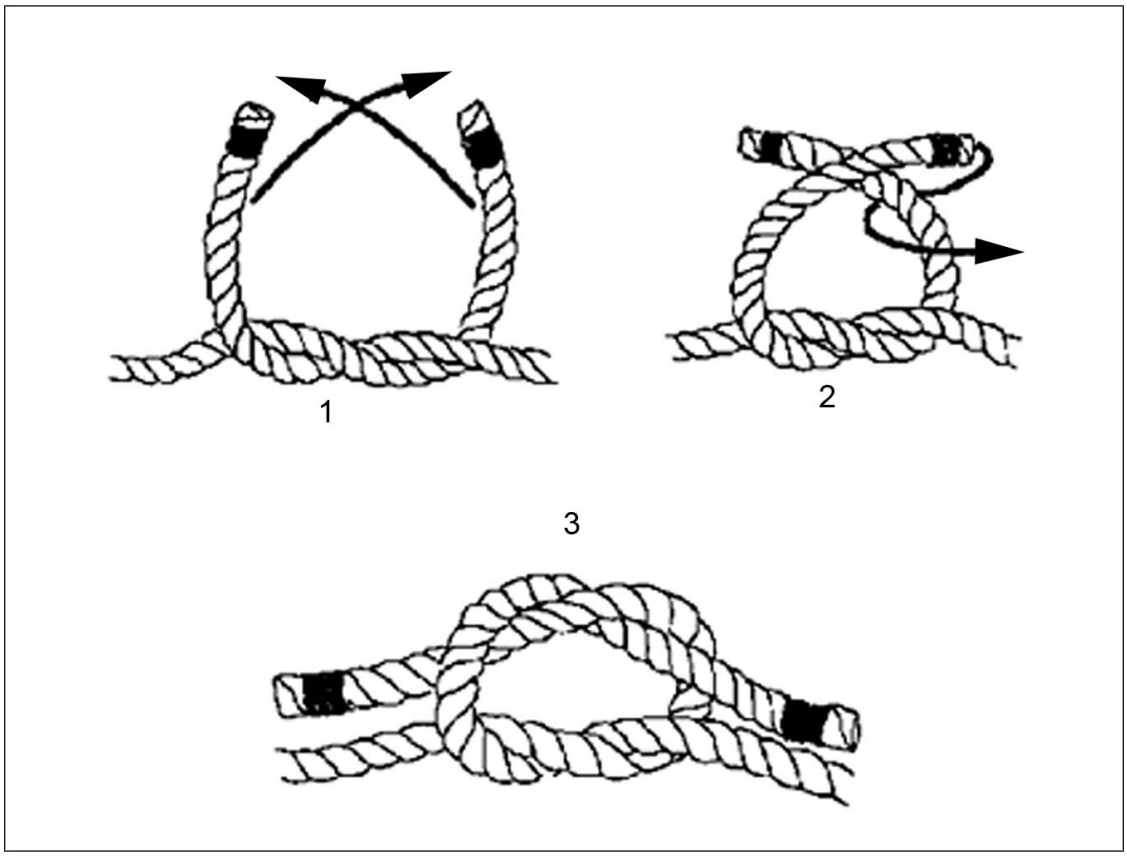


Figure 052-204-1204-1
Square Knot

2. Tie a figure eight knot (Figure 052-204-1204-2). Use this knot to prevent the unlaying of the bitter end of a line and the unreeling of a block.

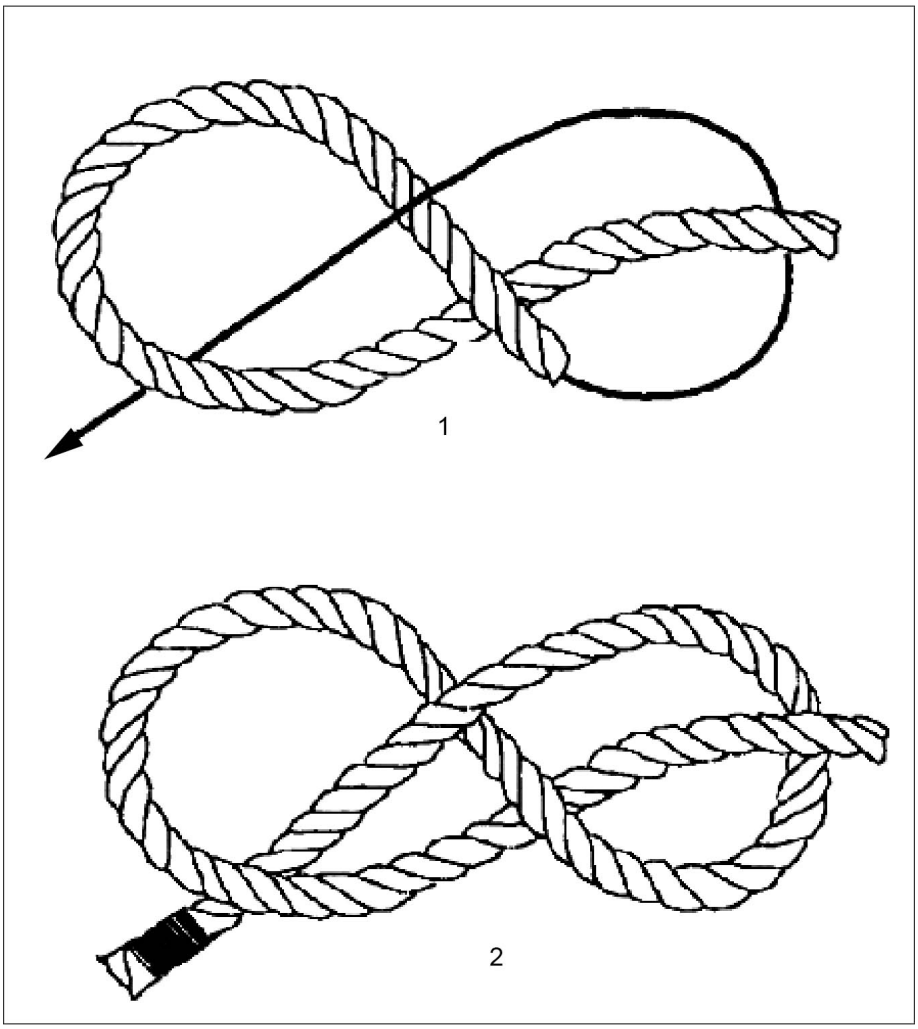


Figure 052-204-1204-2
Figure Eight Knot

3. Tie a bowline knot (Figure 052-204-1204-3). Use this knot to form a nonslipping loop. It is a secure knot that is fast and easy to tie.

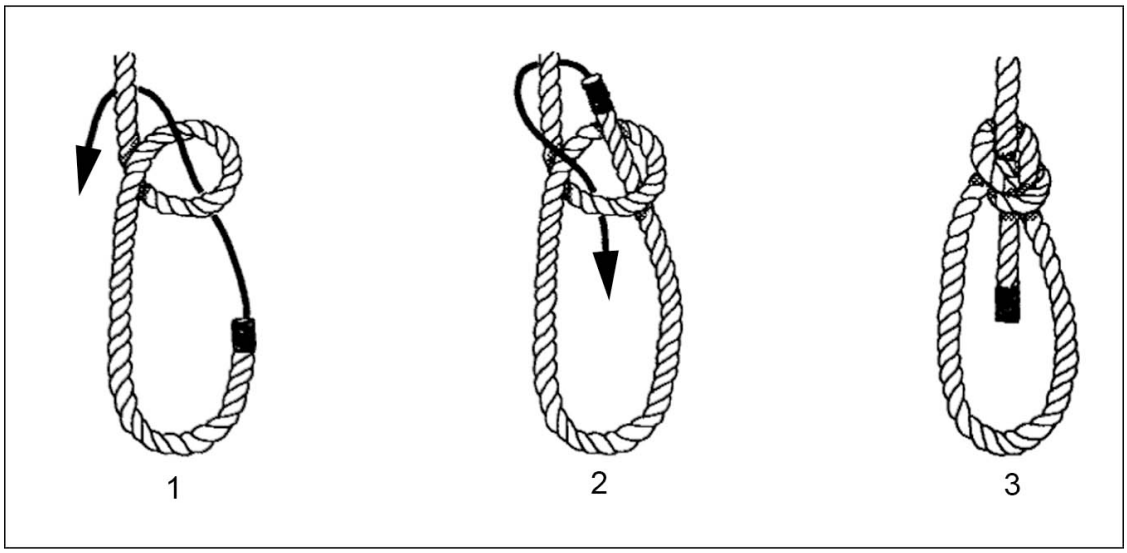


Figure 052-204-1204-3
Bowline Knot

4. Tie a bowline-on-a-bight knot (Figure 052-204-1204-4). Use this knot to tie a bowline in the middle of a line.

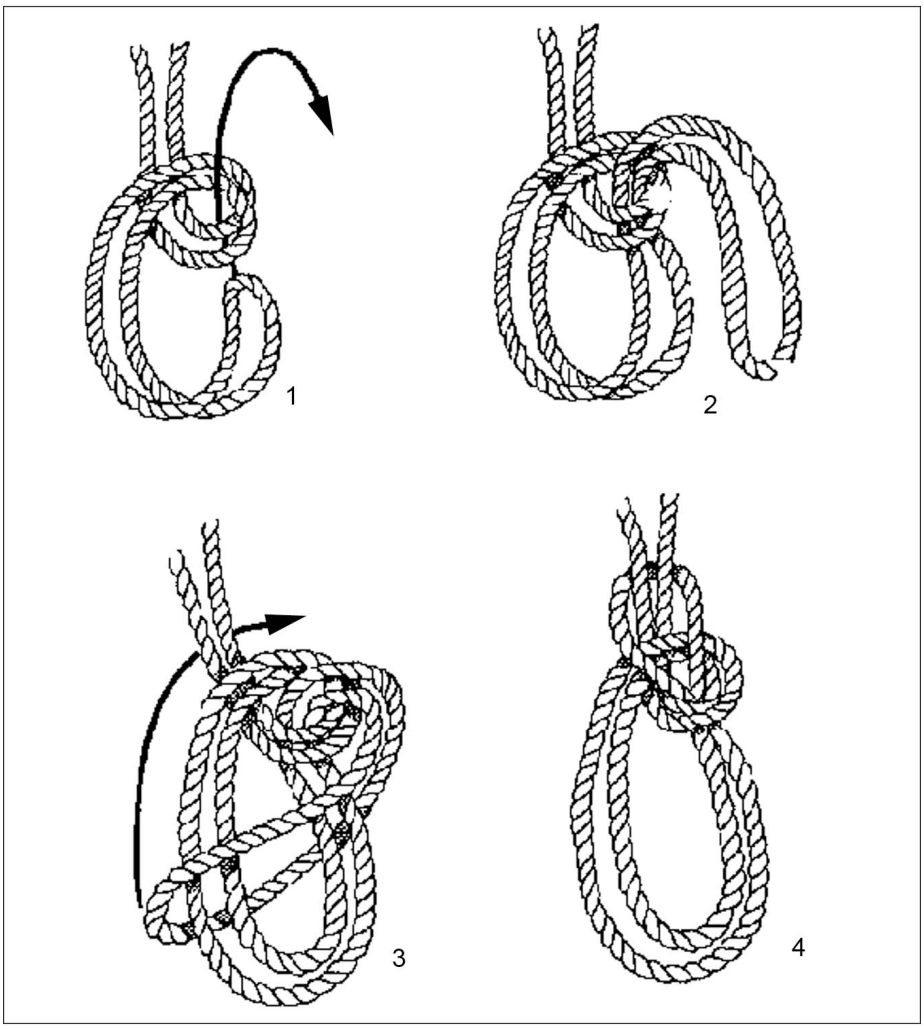


Figure 052-204-1204-4
Bowline-on-a-Bight Knot

5. Tie a clove hitch knot. The clove hitch is the best all around knot for rings, spars, or round or nearly round objects (Figure 052-204-1204-5). This knot is easy to tie and will not slip.

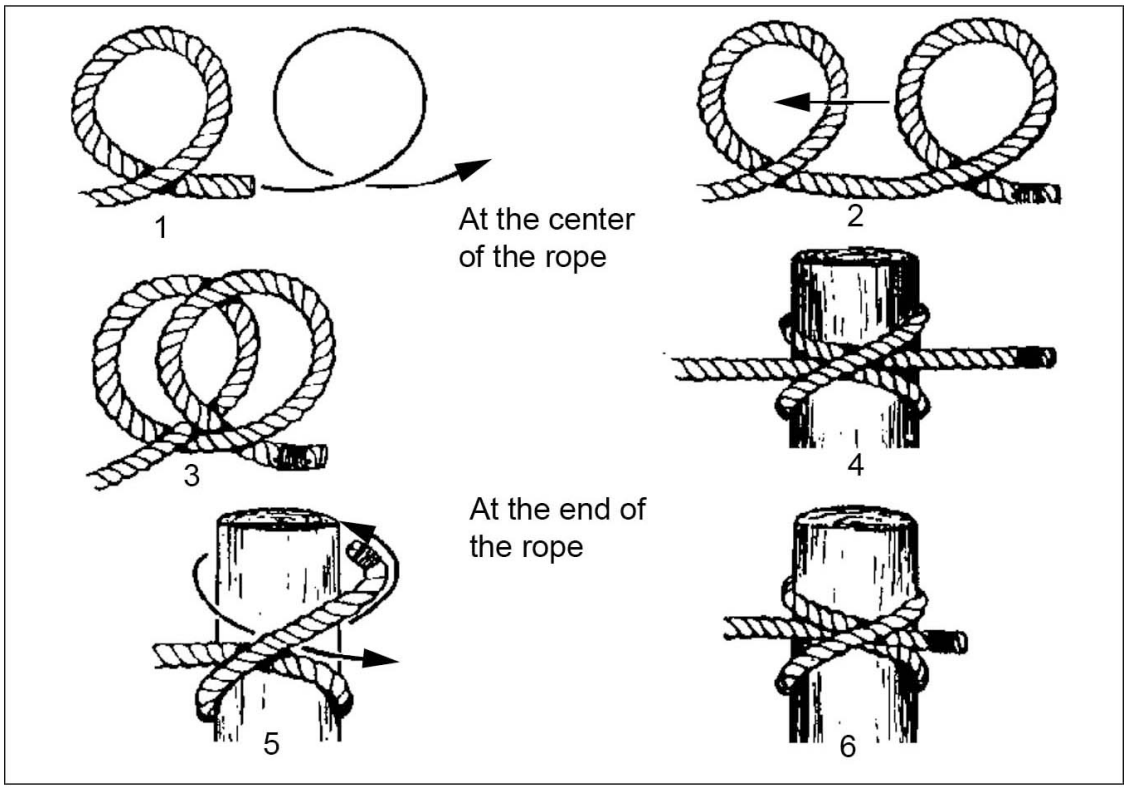


Figure 052-238-1530-5
Clove Hitch Knot

6. Tie a timber hitch knot (Figure 052-204-1204-6). Use this knot when the rope is going to be tied around a rough surface (like a crossarm) and under strain. It should not be used when security is a high priority or when the direction of pull could change abruptly.

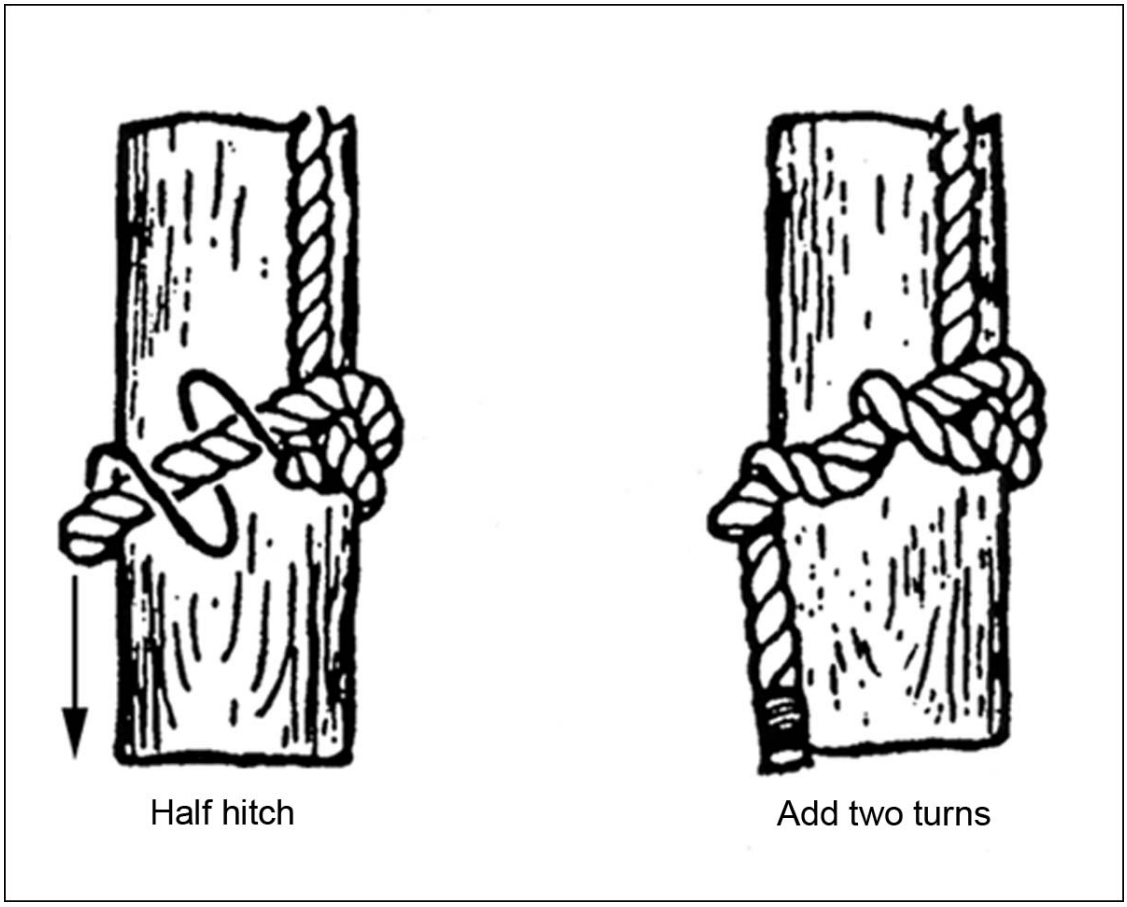


Figure 052-204-1204-6
Timber Hitch Knot

7. Tie a baker's bowline knot (Figure 052-204-1204-7). Use this knot to remove slack from a line, allow for the quick tie-down of cargo, and keep tension where needed.

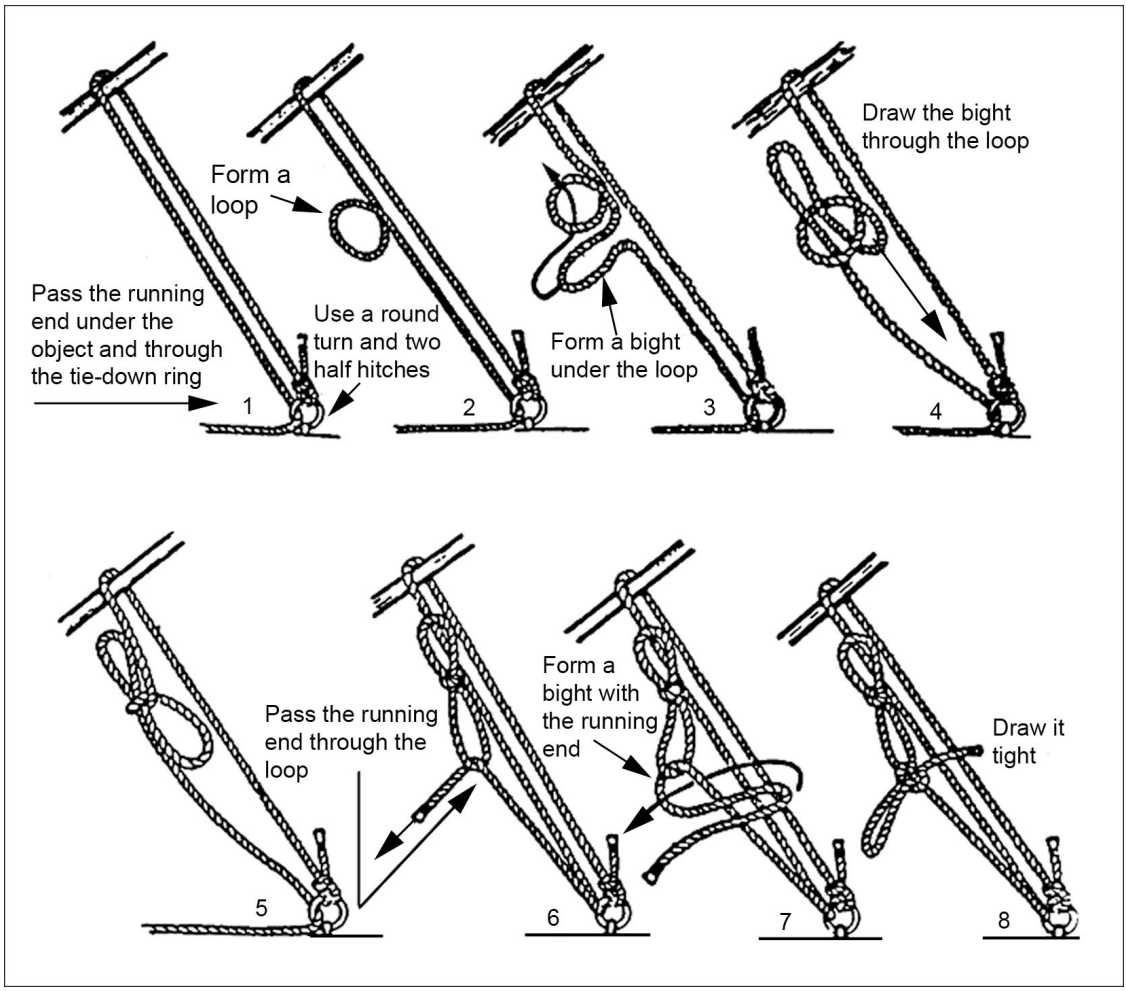


Figure 052-204-1204-7
Baker's Bowline Knot

8. Tie a sheepshank knot (Figure 052-204-1204-8). Use this knot to shorten or bypass a weak spot or remove slack from the line.

Note: If the tension is removed from the line, the knot will come untied.

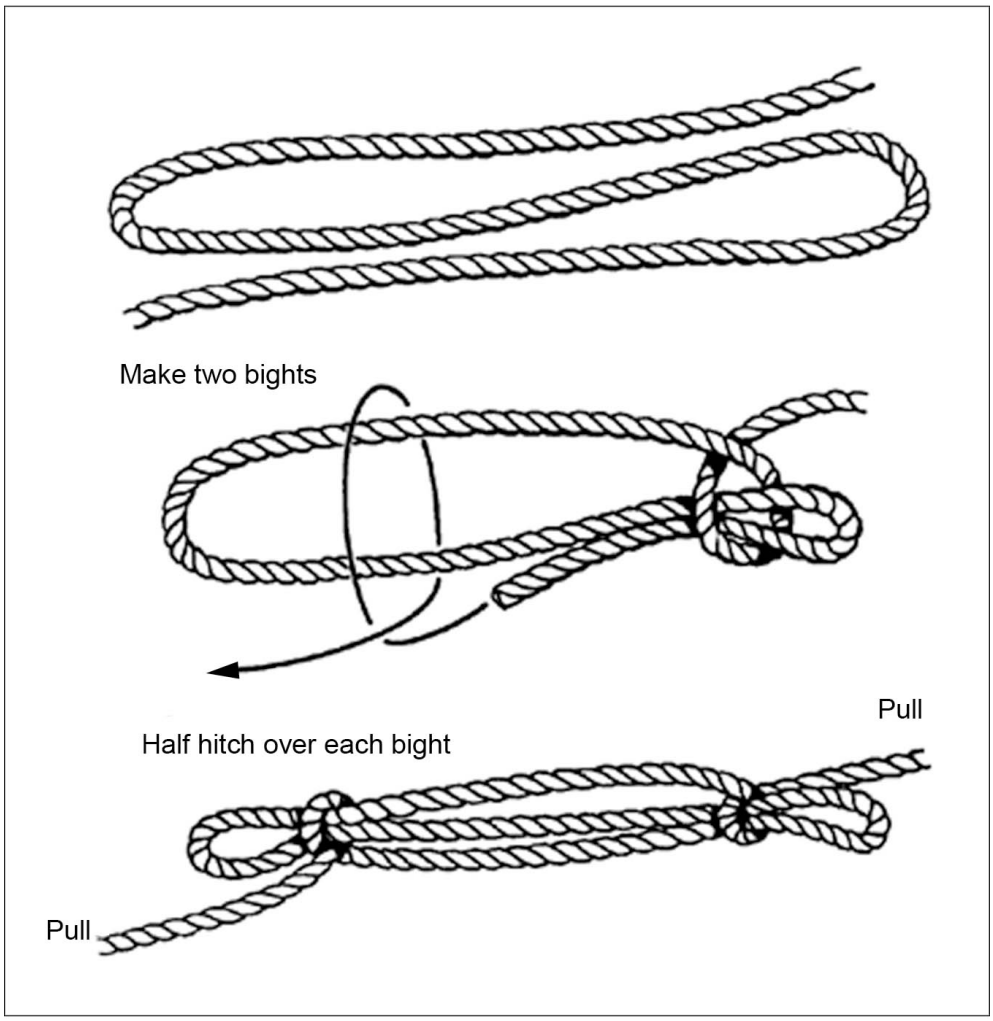


Figure 052-204-1204-8
Sheepshank Knot

9. Tie a cat's-paw knot (Figure 052-204-1204-9). Use this knot when the center of a line is secured to a hook. The knot can be tied fast and will not jam.

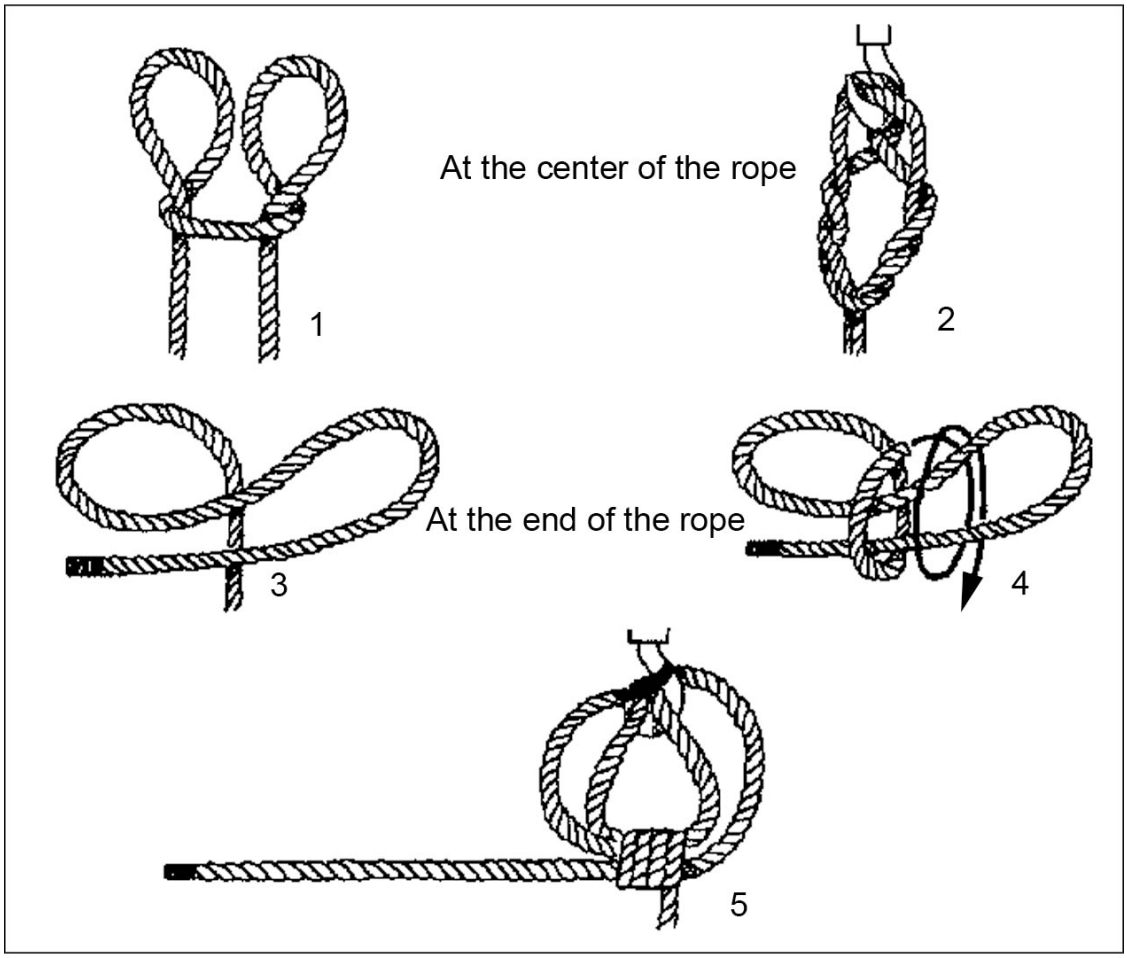


Figure 052-204-1204-9
Cat's-Paw Knot

10. Tie a single and double-becket knot (Figures 052-204-1204-10 and 052-204-1204-11). Use this knot to tie together two lines of equal or unequal thickness. Use a single-becket knot for dry lines and a double-becket knot for lines of unequal thickness. The becket knot is often referred to as a sheet bend knot or a becket bend knot.

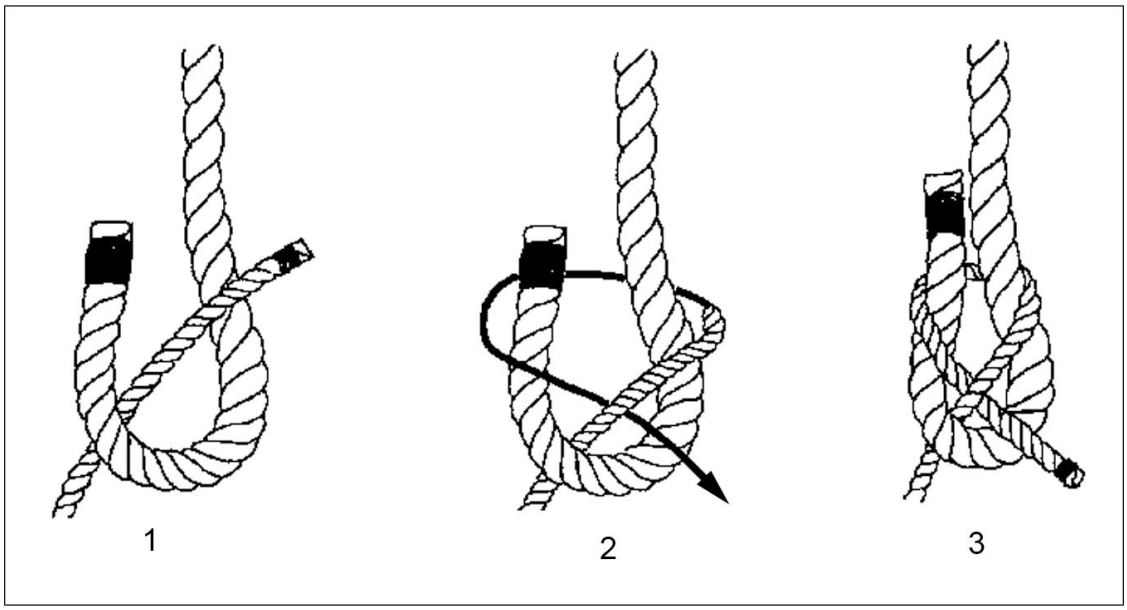


Figure 052-204-1204-10
Single-Becket Knot

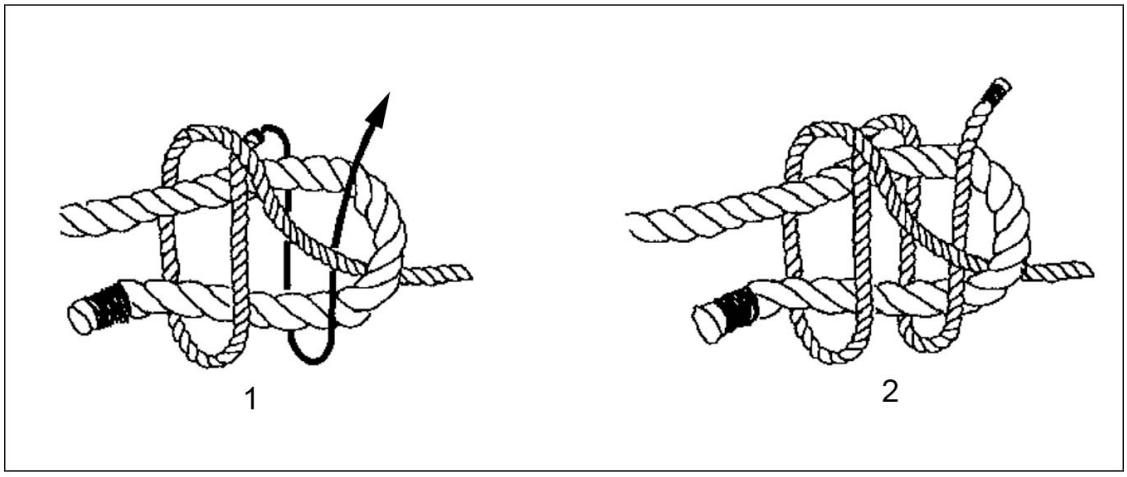


Figure 052-204-1204-11
Double-Becket Knot

11. Tie a barrel hitch knot (Figure 052-204-1204-12). Use this knot to hoist any bulky object. It is particularly useful on transformers.

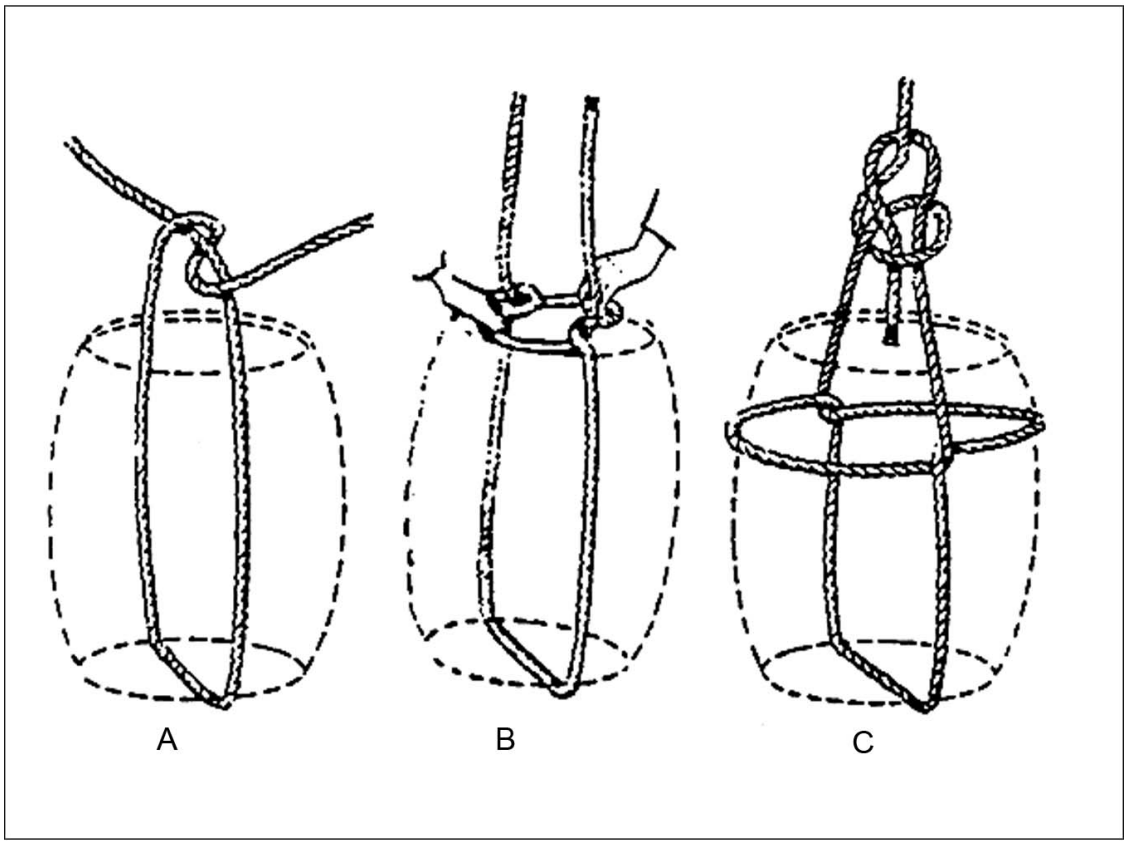


Figure 052-204-1204-12
Barrel Hitch Knot

(Asterisks indicates a leader performance step.)

**Evaluation Preparation:** Provide the Soldier with all the items listed in the conditions. Give the Soldier a safety briefing before starting the test, and ensure that all safety precautions are followed. Prepare the testing area and equipment in advance to ensure that the task standards can be met.

| PERFORMANCE MEASURES | GO | NO-GO | N/A |
|---|---|---|---|
| 1. Tied a square knot. | | | |
| 2. Tied a figure eight knot. | | | |
| 3. Tied a bowline knot. | | | |
| 4. Tied a bowline-on-a-bight knot. | | | |
| 5. Tied a clove hitch knot. | | | |
| 6. Tied a timber hitch knot. | | | |
| 7. Tied a baker's bowline knot. | | | |
| 8. Tied a sheepshank knot. | | | |
| 9. Tied a cat's-paw knot. | | | |
| 10. Tied a single- and a double-becket knot. | | | |
| 11. Tied a barrel hitch knot. | | | |

**Supporting Reference(s):**

| Step Number | Reference ID | Reference Name | Required | Primary |
|---|---|---|---|---|
| | LCH | The Lineman's and Cableman's Handbook, 11th Edition, McGraw-Hill. 2007 | No | No |

**Environment:** Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects.

**Safety:** In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. Everyone is responsible for safety. A thorough risk assessment must be completed prior to every mission or operation.

**Prerequisite Individual Tasks :** None

**Supporting Individual Tasks :** None

**Supported Individual Tasks :**

| Task Number | Title | Proponent | Status |
|---|---|---|---|
| 052-204-1115 | Rescue an Injured Victim From a Manhole | 052 - Engineer (Individual) | Approved |
| 052-204-1120 | Install a Grounding Set | 052 - Engineer (Individual) | Approved |
| 052-204-1121 | Install High-Intensity Lights and Ballasts | 052 - Engineer (Individual) | Approved |
| 052-204-1123 | Secure Conductor to Insulator (De-energized) | 052 - Engineer (Individual) | Approved |
| 052-204-1124 | Climb a Utility Pole | 052 - Engineer (Individual) | Approved |
| 052-204-1126 | Perform Crossarm Change Out (With Conductors) | 052 - Engineer (Individual) | Approved |
| 052-204-2217 | Manage a Power Line Crew | 052 - Engineer (Individual) | Approved |
| 052-204-1127 | Perform Groundman Duties | 052 - Engineer (Individual) | Approved |
| 052-204-1202 | Maintain Rigging/Hoisting Equipment | 052 - Engineer (Individual) | Approved |
| 052-204-1113 | Prepare a Manhole for Safe Entry | 052 - Engineer (Individual) | Approved |
| 052-204-1114 | Rescue an Injured Victim From a Utility Pole | 052 - Engineer (Individual) | Approved |
| 052-204-2219 | Supervise the Use of a Line Truck With Trailer to Load and Unload Utility Poles | 052 - Engineer (Individual) | Approved |
| 052-204-2302 | Install Distribution System Protection and Equipment (Energized) | 052 - Engineer (Individual) | Approved |
| 052-204-1211 | Install Distribution System Protection and Equipment (De-energized) | 052 - Engineer (Individual) | Approved |
| 052-204-2301 | Perform Switching, Blocking and Tagging Procedures | 052 - Engineer (Individual) | Approved |
| 052-204-2307 | Supervise the Installation of a Utility Pole Line | 052 - Engineer (Individual) | Reviewed |
| 052-204-2306 | Supervise the installation of a Utility Pole | 052 - Engineer (Individual) | Reviewed |
| 052-204-1209 | String Single Phase and Three Phase Overhead Conductors | 052 - Engineer (Individual) | Approved |

| | | | |
|---|---|---|---|
| 052-204-1207 | Install a Utility Pole | 052 - Engineer (Individual) | Reviewed |
| 052-204-1206 | Use a Line Truck with Trailer to Load and Unload Poles | 052 - Engineer (Individual) | Approved |
| 052-204-1205 | Install Underground Cable | 052 - Engineer (Individual) | Reviewed |
| 052-204-2216 | Perform Maintenance on Electrical Distribution Equipment | 052 - Engineer (Individual) | Approved |
| 052-204-2210 | Secure Conductor to Insulator (Energized) | 052 - Engineer (Individual) | Approved |
| 052-204-1215 | Splice a Medium-Voltage Overhead Power Cable | 052 - Engineer (Individual) | Approved |

**Supported Collective Tasks :**

| Task Number | Title | Proponent | Status |
|---|---|---|---|
| 05-3-5704 | Created from Template: Perform Nonorganic Equipment Power Distribution Maintenance Operations | 05 - Engineers (Collective) | Analysis |
| 05-3-5700 | Created from Template: Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Analysis |
| 05-3-5701 | Created from Template: Install Low-Voltage, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Analysis |
| 05-3-5725 | Install Aerial Electrical Power Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5728 | Assess Power Generation Systems for Damage | 05 - Engineers (Collective) | Approved |
| 05-3-5705 | Retrieve Electrical-Power Generation and Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5704 | Perform Nonorganic Equipment Power Distribution Maintenance Operations | 05 - Engineers (Collective) | Approved |
| 05-3-5702 | Created from Template: Install Underground Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Analysis |
| 05-3-5723 | Install Prime Power Generation Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5700 | Created from Template: Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Analysis |
| 05-3-5700 | Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5727 | Install Underground Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5729 | Operate Power Generation and Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5702 | Install Underground Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5731 | Perform Electrical-Power, Distribution Equipment Organizational Maintenance Operations | 05 - Engineers (Collective) | Approved |
| 05-3-5724 | Install Expedient, Surface-Laid, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5701 | Install Low-Voltage, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Approved |
| 05-3-5733 | Perform Power Plant and Distribution Equipment Shipment | 05 - Engineers (Collective) | Approved |

**ICTL Data :**

| ICTL Title | Personnel Type | MOS Data |
|---|---|---|

| | | |
|---|---|---|
| 12Q10, Power Line Distribution Specialist, skill level 1 | Enlisted | MOS: 12Q, Skill Level: SL1 |
| ASI U4, Power Line Distribution | Enlisted | MOS: 12P, ASI: U4 |